Magnetic Tension Control Weight Training Machine

Field of the Invention

The present invention relates to a magnetic tension control weight training machine that provides multiple body-building exercises such as rowing training and physical
5   strength training.

Background of the Invention

Traditional tension control weight training machine only provides a single function, either hand/feet training or extension training.   In order to make the weight training machine as small as possible for the purpose of convenience, the weight training
10   machine is usually made quite simple in its mechanical structures with load-bearing structure and the flexible spiral spring.   Such a spring, however, loses its flexibility after a while, making it unable to reposition the pulling rope back to the original place. When the force enact on the machine terminates, a strong back pulling force occurs that applies on the user when the rope is on its way back to the start point.

15   ## *Summary of the Invention*

The main objective for the present invention is to provide a magnetic tension control weight training machine with a precise control over the resistance force through a large revolver wheel that rotates toward a specific direction.   With an accurate reposition device, the magnetic tension control weight training machine can provide
20   the best training effects.

In the following, the embodiment illustrated is used to describe the detailed structural characteristics and operation action for the present invention.

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Brief Description of the Drawings

Fig. 1 is a three-dimensional illustration for the outlook of the present invention.

Fig. 2 is a three-dimensional illustration for the outlook from another angle of the present invention.

5   Fig. 3 is a three-dimensional illustration for deformation of the present invention.

Fig. 4 is an end view for the application of the present invention.

Fig. 5 is an end view for another application of the present invention.

Fig. 6 is an end view for still another application of the present invention.

Detailed Description of the Invention

10   Please refer to Fig. 1 to Fig. 3.   The magnetic tension control weight training machine mainly contains a base 1, a large revolver wheel 2, a belt disc 3, a shaft set 4, a bearing assembly 5, a pulley assembly 6, a magnetic resistance flywheel 7, a pulling rope 8 and a reposition device 9.   Two braces 11, 12 are fixed upon the base 1, where the brace 11, 12 allows for the placement of the large revolver wheel 2 and the

15   magnetic resistance flywheel 7 and other components, specifically, the brace 11 is for the placement of the large revolver wheel 2, the belt disc 3, the shaft set 4, the bearing assembly 5 and the pulley assembly 6.   The wheel spacer 21 of the large revolver wheel 2 contains the bearing assembly 5 wherein there is one way bearing 51 and two other bearings 52.   The other two bearings 52 could be metallic bushings, the

20   mechanism of one way bearing can prevents the large revolver wheel 2 from being

unintentionally rotated reversibly after in motion of revolving.

The shaft set 4 passes through the bearing assembly 5 inside the large revolver wheel 2, with its snap ring 42 locking up the bearing assembly 5. There is a small revolver wheel 22 place on one side of the large revolver wheel on the wheel spacer 21.

5 Slipped onto the wheel spacer 21, the small revolver wheel 22 is fixed on the large revolver wheel 2.   On the shaft set 4 protruding out from the large revolver wheel 2 there is a shaft disc 41 fixed to the belt disc 3.   With the shaft set 4 passing through the large revolver wheel 2, the large revolver wheel 2 is connected to the belt disc 3. After assembling the above components through the shaft set 4, the ends of the shaft

10 set 4 are put on the brace 11.   The mounting part of the shaft set's 4 ends could be locked with bearings 113 in the flanged housings 111 and tighten with bolts 112.

After placing the large revolver wheel on the brace 11, the pulley assembly 6 for the application of the pulling rope 8 is placed above the large revolver wheel 2.   The pulley assembly 6 has several pulleys 61.   One end of the pulling rope 8 is fixed on

15 the tip of the large revolver wheel 2 while the other end passes through the pulley assembly 6, connecting the pulling handle 81.   The stop ball 82 beneath the pulling handle 81 limits the pulling rope 8 in-between the pulley assembly 6.

After the large revolver wheel 2 is set, the magnetic resistance flywheel 7 is place on the brace 12 which is on the same side with the belt disc 3, The magnetic resistance

20 flywheel 7 will uses a belt 71 to connect with the belt disc 3, so as to revolve the magnetic resistance flywheel 7 through the rotation of the large revolver wheel 2.

For the connection of the large revolver wheel 2 and the reposition device 9, the pulling rope 95 connects the reposition device 9 with the small revolver wheel 22 of

the large revolver wheel 2. On the external side of the brace 11 (that is on the same side of the small revolver wheel 22) designed for the placement of the large revolver wheel 2 there are two flex fixtures 13, designed for the placement of the reposition device 9. One flex fixture 13 holds an adjustment bolt 94 which is locked with a

5   bracket 93. The purpose of the bracket 93 is to prevent the pulling rope 95 from swaying during operation. The other flex fixture 13 has several flexible components 91 connected to an active pulley 92. A bracket 93 is used in-between the two flex fixtures 13 to fix one end of the pulling rope 95. The other end of the pulling rope 95 stretching through the active pulley 92 and entwines around the carriage pulley 62

10   on the brace 11 and fixes on the small revolver wheel 22.

Please refer to Fig. 1, Fig. 2, Fig. 4 and Fig. 5. During the operation of the magnetic tension control weight training machine for the present invention, the controller 10 can adjust the control of the magnetic resistance flywheel 7. The controller might be an electronic controller 10' with a sensor 20' (refer to Fig. 6). When the pulling rope

15   8 is pulled, the large revolver wheel 2 rotates, driving the small revolver wheel 22 to pull the pulling rope 95 of the reposition device 9. Since the bearing assembly 5 inside the large revolver wheel 2 only rotates toward single direction, the large revolver wheel 2 driven by the pulling rope 8 wouldn't reposition on its own, but through the small revolver wheel 22 being pulled back by the pulling rope 95 and the

20   reposition device 9 to bring the large revolver wheel 2 back to the original position. The reposition is completed by the several flexible components 91 of the reposition device 9, no need for using single large-diameter flexible component; therefore, the deformation problem is eliminated and that performs better reposition. There wouldn't be a problem for inaccurate reposition of the large revolver wheel 2 and thus

25   influences the reposition of the pulling rope 8.

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Meanwhile, the magnetic tension control weight training machine for the present invention applies to many kinds of body-building machines; therefore, the pulling rope 8 on the large revolver wheel 2 can be designed for different kinds of devices.

5   The present invention also provides a reposition system different from other magnetic tension control system, able to control manually or through programs.   For the present invention, the ability of using automatic programs to control the magnetic tension control weight training machine because of limitation from different types of structure no longer exists.   The magnetic tension control weight training machine for the present invention can replace the weight system for current physical strength

10 training and provide multiple functions.

To summarize the above description, the power cord in the present invention can provide effective performance and extend its life of usage through a simple mechanical innovation, which practically meets the qualifications for invention based on new type and improvement. Accordingly, an application is submitted for

15 examination.